

Implementation Of Emergency Reporting Application For Accident And Disaster Management

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Abstract. *Nearly a hundred millions are affected by accidents and many people are losing their lives every year. During disasters there is lack of communication between the victim and the response/rescue team, this indirectly takes the lives of many people. Though there are many disaster management software's, none of them has included the feature called "video streaming" with help of which we can give basic precautionary first aid to the victims on the spot. Our idea was to integrate all these independent software features and make it as a multitasking productive software. The interesting feature in our application is, when we shake our phone five times then automatically the mobile front and back camera opens and starts streaming and simultaneously sending the location.*

Keywords: *AFAD, Android, IOS, API.*

1. INTRODUCTION

Emergency Reporting application will give access to people to report to ambulance, hospitals, police and even doctors to give first aid from the respective hospitals the request was sent[1]. In the worst cases most victims are dead on the spot of accident and on the way to hospitals for not taking any precautions or basic medical aids[2]. In this system we will directly or indirectly give confidence to people to attempt precautions which they could do only on the instructions of doctors and everything is recorded so if that victim dies while doing first aid the user will not have any police issues[3]. We will be checking the redundant request at a particular location and the system will take one aggregated request and if the user wishes to do first aid he/she can access the doctor instructions and contribute their work.

2. MOTIVATION

In accidents and emergency situations such as natural disasters, communication plays a

significant role[4]. For instance, people may need to communicate with others to appeal

for help. Or they may want to be informed about the situation of their relatives. Nowadays responsibility among people is becoming less. Once the accidents happen instead of helping they are taking pictures and videos[5][7]. The project will deal with this problem and it will allow communicating with others through video mode and help them save their life. To make realize their mistake of not saving life instead of taking video for simply sharing[6]. Now this action becomes a lifesaving activity. Some may accept or not first thing is fear of blood and police. Next is lethargy and social media's wrong influence on accidents.

3. BACKGROUND: ANDROID

Android, it has various versions named as oreo, jelly bean, kitkat SDK versions: we have various sdk versions like 7.0, 8.0, 9 and latest we have 10. we have different api levels Our current api level is 28. The android architecture has three main components which are linux kernel, libraries, android runtime. Android applications are developed by java programming languages using android development environment like android studio. Here we have more applications developed every day and may IOT devices are able to interact with these applications. This hardware is based on ARM architecture .It is an open source OS so everyone can develop applications. These android applications can be created and tested using emulator.

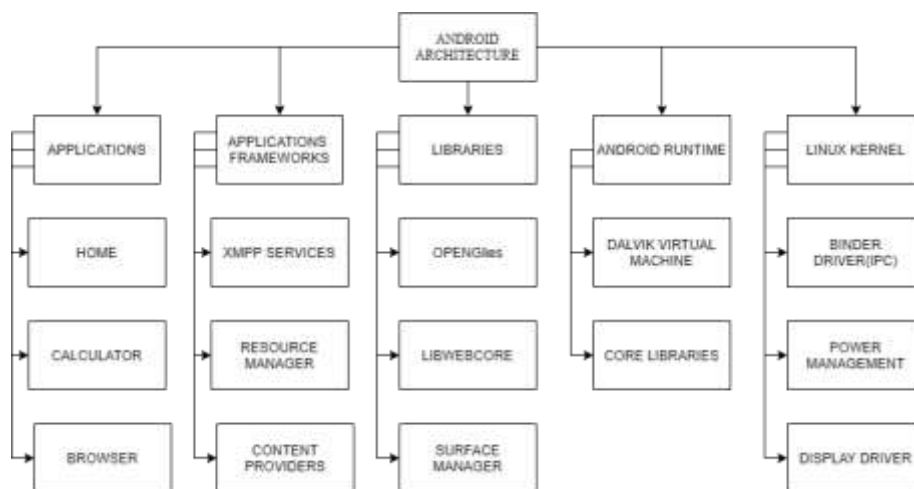


Fig 1 – Android Architecture

4. MODULES

a. Registration

After the user downloaded our application, he/she must register to the system in order to use it. There will be a register button in the login page which redirects users to the register page. After the user registered to the system, he/she can login and use the system. After filling required fields with information, he/she can register to the system using the register button.

b. Broadcasting accident/emergency

Users broadcast to the emergency officials or doctors to ask help in accidents or emergency situations such as an earthquake. AFAD or doctor broadcasts messages in voice and video form to help victims in danger.

c. Send location

User of our application sends the location of him automatically once he requests for help.

d. Recent accident analysis

i. Accident prone zone

The user can view the report of accidents in nearby localities and they could be safe on those roads.

ii. Accidents count

This will tell who were saved by this app so that parents or other common people can be more careful when they pass these areas and makes sure the saved count increases.

iii. Awarding system

This system will be served free of cost to users and those who save many victims by their actions like first aid and responsiveness, will be awarded on the monthly basis. Those who are saved will get a chance to meet the person who used our services if the user wishes and basically we will give the victims a flower bouquet during successful discharge.

e. save victims/save me option

Once this option is clicked their name, geo location and basic details will be sent to respective officials. Using this application they can save some other people or they can request for them to save. in both actions they will be saved at most faster than the normal time. in future updates and implementation we will tie up with traffic control of city.

f. UML Diagrams

i. Data Flow Diagram

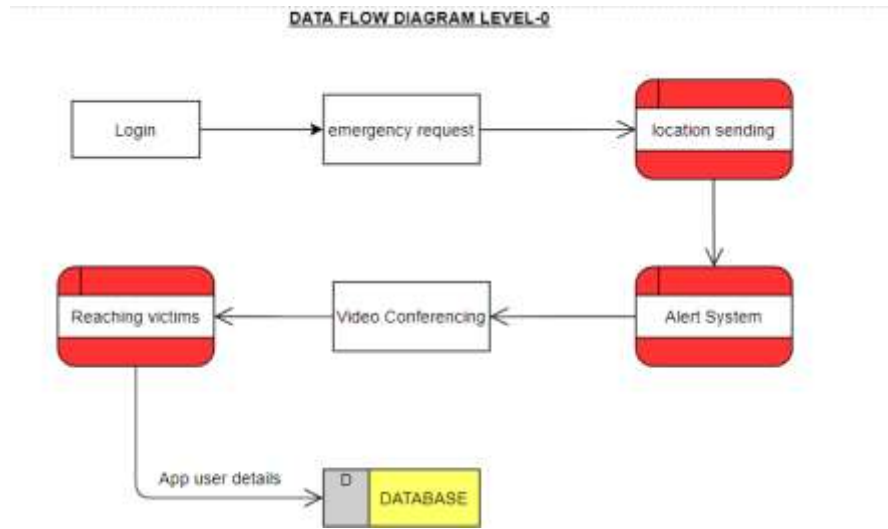


Fig 2 – Level 0 Data Flow Diagram

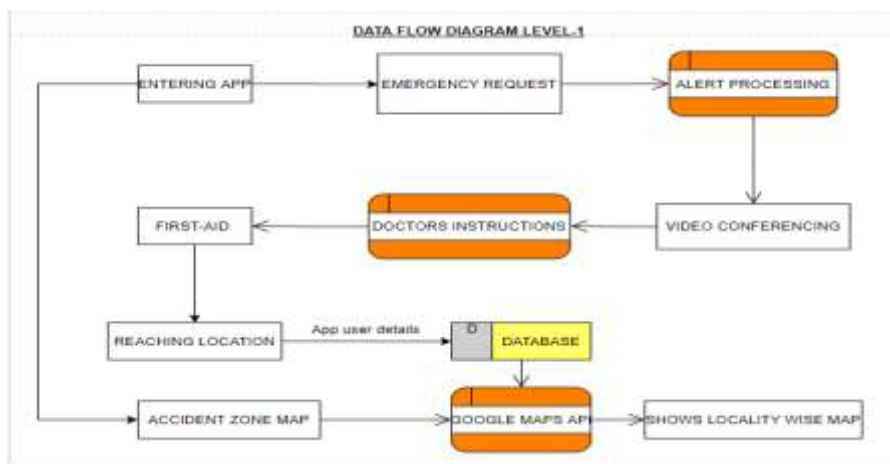


Fig 3 – Level 1 Data Flow Diagram

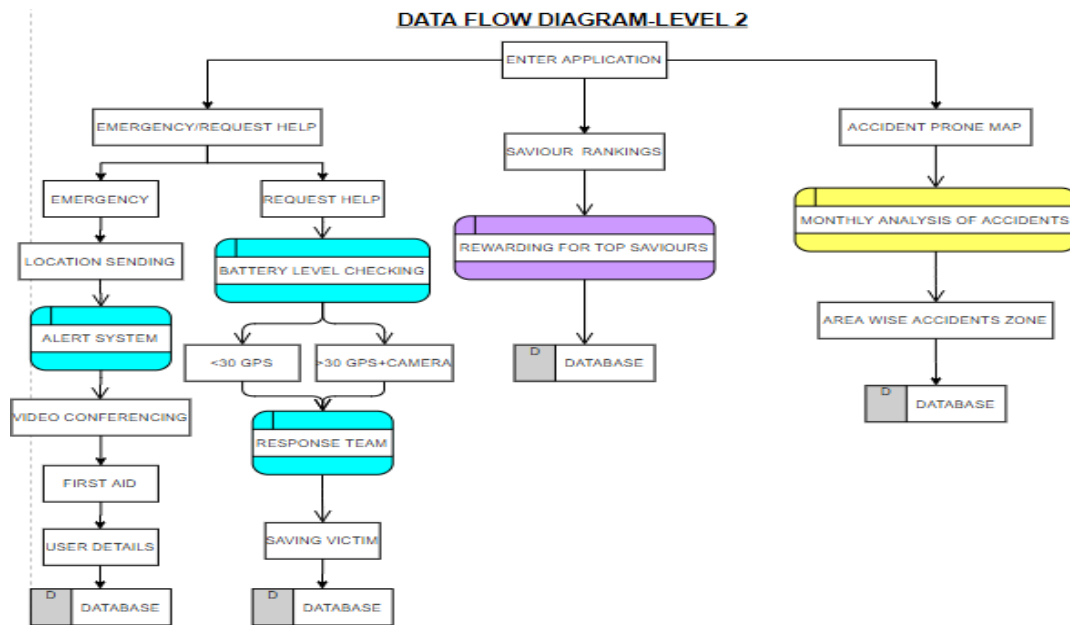


Fig 4 – Level 2 Data Flow Diagram

5. IMPLEMENTATION

We have implemented the login system through which the user can register themselves. Whenever the user is in need of some help, he can shake his/her mobile 5 times and automatically live streaming of his current situation will be shared with the nearby hospitals, ambulance, police and the response team. The doctors can immediately watch the live stream and suggest if it is possible for the user to give basic medical aid by himself.

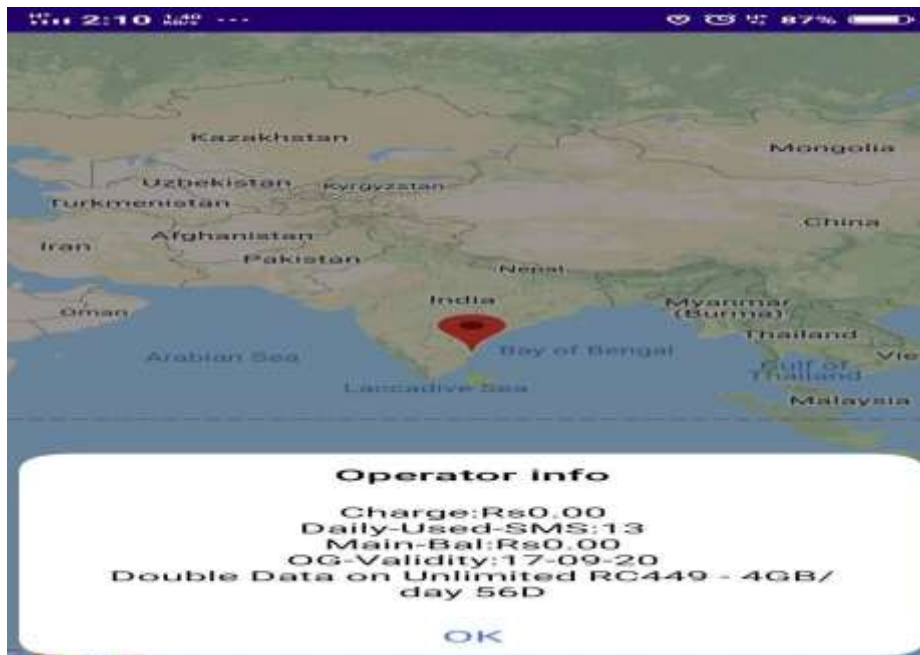


Fig 5 – MAP and Information



Fig 6 – Parameters and Battery Level



Fig 7 – IP Address and URL Check

6. RESULTS ANALYSIS AND STUDY

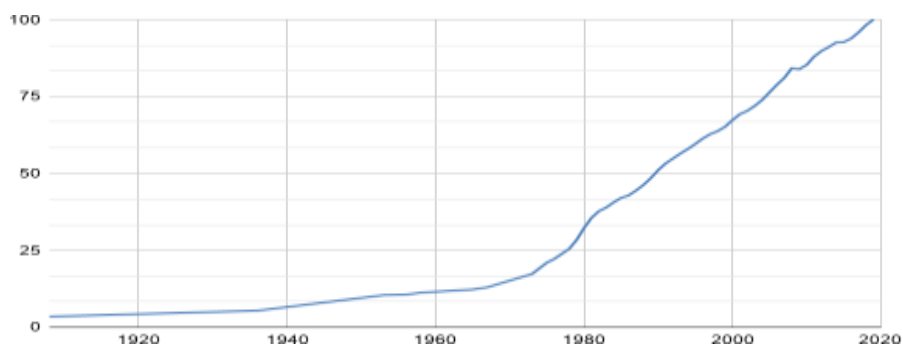


Fig 8 - ACCIDENTS REPORTED FROM 1990 TO 2020(WITHOUT THIS SYSTEM)

This system has been tested and figure shown below depicts the graph of accidents reported from 1990 to 2020 how the accidents would have been reduced if implemented this system in earlier years. Every year nearly 1.7 lakh people lose their lives in road accidents in India. This system could be the game changer in the accidents reporting and responses and the specialized disaster management and establishing communication during the natural calamities between the victims and the rescue teams. This system performance slowly comes in play with traffic management to ensure fast arrival of victims to hospitals and it is easy for the doctors to diagnose and give treatment to victims as they can judge the victims during video streaming option. The below graph shows the comparison of deaths before and after implementation of this system. (Dataset from <https://public.emdat.be/>)

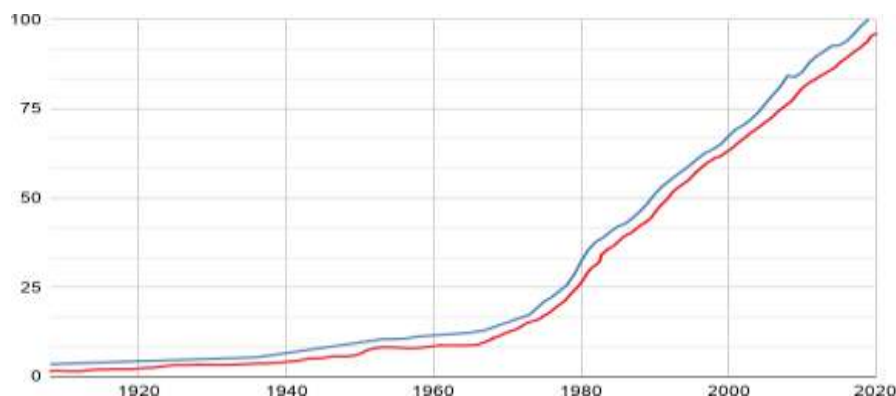


Fig 9 - ACCIDENTS REPORTED FROM 1990 TO 2020(PREDICTION WITH THIS SYSTEM)

7. CONCLUSION AND FUTURE WORK

Mobile based emergency reporting applications will have a great impact in society and our application helps in reducing accidents drastically if this application is used by many users. Here we have user reward system based on karma points which will increase the usage of application. The accident prone zone mapping helps user to check the accidents in their locality so that they can travel safely. In our future updates we will try to integrate with traffic systems and healthcare IOT devices to make saving each life at most at ease steps.

8. REFERENCES

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